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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/588,587	06/06/2000	Marc W. Kauffman	D2253 CIP	8160

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Wendy W Koba Esq
P O Box 556
Springtown, PA 18081

EXAMINER	
SLOAN, NATHAN A	

ART UNIT	PAPER NUMBER
2614	10

DATE MAILED: 04/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/588,587	KAUFFMAN ET AL.	
	Examiner	Art Unit	
	Nathan A Sloan	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6 and 8-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 8-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's arguments filed 8/5/00 have been fully considered but they are not persuasive.

With respect to claims 1, 3-6, and 13-30, applicant discusses the teachings of Schwartzman and particularly the newly amended limitation to independent claim 1 indicating "summing the results across a plurality of frequency bands within a specific time interval." Applicant asserts that Schwartzman does not teach this feature because there is no teaching of comparing one channel to another. However, the comparison of multiple channels to each other is not recited in claim 1. Even assuming applicant clearly indicated comparison of frequency channels, examiner directs applicant to Fig. 3, item 310 which indicates searching for a frequency channel with a lower noise by repeating the noise determination process discussed below.

Applicant agrees that Schwartzman analyzes channels, with each channel broken down into a plurality of subbands. It is also agreed that Schwartzman teaches analyzing a plurality of subbands to accrue correlated data as an indication of power on a particular channel. Applicant states that the claim language would require Schwartzman to teach summing across a plurality of frequency *channels*. Again, no such limitation is found in claim 1. Rather, applicants claim 1 recites summing across a plurality of frequency *bands*. Notably, it is agreed that Schwartzman teaches summing across a plurality of subbands. These subbands are frequency bands, and therefore meet the limitation of summing across a plurality of bands within a channel at an instance of time (generally in a range of 3KHz to 3.2MHz, col. 10:32-49). Additionally, as seen

in Fig. 3 at item 302-304, the sampling process may have a varying bandwidth, including the entire return path (see also col. 10:21-30).

To these means, applicants claim language is met as addressed in detail in the following rejections.

Oath/Declaration

1. The Oath/Declaration is objected to because no claims to priority have been made to provisional application 60/138,933 or to application 09/074,851, now US Patent 6,321,384, as a continuation in part, which is a continuation of 08/347,573, both of which are claimed as priority in the first paragraphs of the amended specification.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 3-7, and 13-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Schwartzman (6,385,773).

Schwartzman et al. (6,385,773) teach a system and method for switching frequencies in the presence of ingress noise.

With respect to claim 1, the claimed method for characterizing ingress events having return path communications in a plurality of frequency band is met by Schwartzman as seen in Figure 3. The claimed "detecting one or more ingress events in the return path over a pre-determined time period" is taught in column 6, lines 29-34. The claimed marking the frequency band and time interval "in which the ingress events exceeds a predetermined threshold" is taught with determination of noise is greater than a threshold, taught in column 9, lines 59-62, and storing data in memory indicating noise levels at a detected time, taught in column 10, lines 35-52. The claimed creation of a time/frequency map of the ingress events containing results of times and frequencies above a pre-determined threshold is taught in column 12, lines 41-50 with utilization of a Fast Fourier Transform and mapping data into memory over frequencies. This map may be created as a result of a sampling over a "pre-determined time period" as taught in column 10:45-52. Furthermore, the claimed "summing the results of the marking process across a plurality of frequency bands" is taught in column 10, lines 32-52 by splitting up a frequency channel into multiple bands using a FFT and then examining the power level for the frequency channel using these band measurements. The sampled bandwidth may be relatively narrow, such as within a given 300KHz to 3.2 MHz range (col. 10:34-36, or wide over the return spectrum of 5MHz to 42MHz col. 10:25-30). This process is also taught to be done "within a specific time interval" as claimed.

With respect to claim 3, the claimed evaluation of the time/frequency map is taught in column 12, lines 47-49. Schwartzman further teaches "mitigating the return path ingress, based on the evaluation of the time/frequency map" by selecting a different frequency based on the evaluation in order to reduce noise level, seen for example at step 410 of Figure 4.

With respect to claims 4 and 5, the claimed "attenuating the return path signal" based "on a power-level equalization algorithm" is taught in column 11, lines 64-67 and column 12, lines 1-8 by switching to a frequency channel having a lower power measurement in order to control noise.

With respect to claim 6, the claimed "removing the return path signal" is taught by Schwartzman via transitioning to a new frequency signal (col. 10:8-12), effectively "removing" that path of frequencies. This is also seen in Figure 3 at steps 308, 310, and 312.

With respect to claims 13-16, the claimed performing of the method "at the head end," "substantially near the subscriber location," "at a test point in the network," and "at the head end of the network," are all met by performing the method of claim 1 at the head end 102 of Figure 2A.

With respect to claim 17, the claimed utilization of "ingress measurements extending across the return frequency band" is taught in column 9, lines 45-48.

With respect to claim 18, the claimed detection of ingress events within a "sub-band of the return frequency band" is taught in column 12, lines 50-54.

With respect to claims 19 and 20, the claimed taking place in an active or inactive "sub-band of the return frequency band" is taught met by Schwartman by frequency scanning and monitoring detected power levels. Schwartzman teaches analyzing the entire return frequency

band and dividing this band up into frequency channels, which are iteratively analyzed. Although the channels within the entire return frequency band aren't explicitly referred to as being "active" or "in-active," it is clear that some frequency channels will be active and others inactive. This is supported by the fact that Schwartzman shows analyzing both a frequency channel in use, claimed "active" and channels not in use, claimed "inactive" in order to determine if a better frequency channel may be switched to. This process is best understood with reference to Figure 4.

With respect to claim 21, the claimed "measuring an average return path signal power in the return frequency band, comparing the average return path signal power to a detection threshold, and determining the presence of an ingress event in the return frequency band based on the result of the comparison" is met as seen in Figures 3 and 4. As noted above the average power measurements across a frequency band are computed, taught in column 10, lines 39-45 and column 11 lines 15-18, and these measurements are used by the spectrum analyzer to compare power measurements to other frequency bands and determine a best path at steps 404, 408, and 410 of Figure 4.

With respect to claims 22 and 25, the claimed "retrieving information on channel usage to distinguish active sub-bands from inactive sub-bands" is taught in column 11, lines 41-48 with retrieving power measurements that are used to indicate if no data or signal is being transmitted over a certain frequency channel and are thus "inactive," as claimed, or available or as data carriers. These inactive frequency channels may be transitioned to from the active data carriers if the detected ingress is less than that of the active data carriers, seen at steps 408 and 410 of Figure 4.

With respect to claims 23-24 and 26-27, the claimed information on channel usage being retrieved "at the head end," and "substantially near the subscriber location" is met by retrieving the information at the head end 102 of Figure 2A.

With respect to claim 28, the claimed "estimating a power spectrum density of a return signal path" and correlation of PSD with stored PSDs is taught by Schwartzman as noted above in column 10, lines 39-52. A peak correlation is determined using the frequency with the least amount of noise (see Figure 3, item 304), and this frequency channel is then assigned for upstream communication (see Figure 3, item 312), meeting the claimed "created."

With respect to claims 29 and 30, the claimed active band being in use "by an in-home device" and a "communications gateway" is met by cable modem 120 of Figure 2A.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 2 and 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schwartzman (6,385,773).

With respect to claim 2, the claimed mapping of events above a pre-determined threshold with a "1" is not taught by Schwartzman. Examiner takes Official Notice that it is well known in the art to use a Boolean value to indicate a true or false condition. It would have been obvious for one skilled in the art at the time of the invention to modify the methods of Schwartzman by storing a Boolean value of "1" indicating the condition of exceeding a threshold of ingress noise in order to provide a simplified representation of noise events.

With respect to claims 8 and 9, the claimed labeling the ingress event as a wideband or narrowband ingress event if the sum obtained is below a pre-determined threshold is not explicitly taught by Schwartzman. However, in column 9, lines 41-55 Schwartzman teaches deriving a power level of a frequency channel presently in use, claimed narrowband, or the entire upstream band, claimed wideband. Threshold detection and comparison techniques are also taught by Schwartzman as noted above in response to claim 1. Furthermore, ingress events are recognized to be predominantly narrow band by Schwartzman as taught in column 4, lines 53-58. The detail of measuring power in a frequency for determining ingress events is noted taught in part in column 10, lines 20-38 for either the narrowband or wideband spectrum. While Schwartzman does not explicitly teach labeling the event as either a "narrowband" or "wideband" event, the methodology for determining if ingress is either narrowband or wideband is presented. It is therefore the position of the examiner that it would have been obvious for one skilled in the art at the time of the invention to explicitly classify an in ingress event as "narrowband" or "wideband" using the narrow and wideband ingress detection techniques of Schwartzman in order to provide an operator an easily understood summary as to whether a fault was wide-scale or on a narrowband.

With respect to claim 10, the claimed summing results across a plurality of time intervals within a specific frequency band is not explicitly taught by Schwartzman. However, in column 12, lines 41-53 Schwartzman teaches utilizing a Fast Fourier Transform as is known in the art. Examiner takes Official Notice that Fast Fourier Transforms are well known to be performed using either decimation in time or decimation in frequency. It would have been obvious for one skilled in the art at the time of the invention to modify the FFT techniques of Schwartzman to include summing results across time intervals in order to analyze ingress over a period of time in addition to at a specific frequency.

Claims 11-12 are met as noted above in response to claims 8-9, in view of the Official Notice regarding claim 10.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan A Sloan whose telephone number is (703) 305-8143. The examiner can normally be reached on Mon-Fri 7:30am - 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Miller can be reached on (703)305-4795. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

NAS

JOHN MILLER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600